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Federal Communications Commission
Office of the Secretary

Implementation Subcommittee
Fifth Interim Report
to the
FCC Advisory Committee on Advanced Television Service

I. Introduction

The Implementation Subcommittee is comprised of two Working Parties. The mission of Working Party 1 (Policy and Regulation) (IS/WP1) is to define and recommend policies and regulations germane to the process of implementation of advanced television service (ATV) for consideration by the Implementation Subcommittee and Federal Communications Commission (FCC or the Commission). The objectives of Working Party 2 (Transition Scenarios) (IS/WP2) are to analyze the transition process for various generic system concepts in order to evaluate their implementation requirements, to differentiate between the likely implementations of the proposed systems, and to develop an implementation plan for the selected system.

The Implementation Subcommittee endorses the recommendations of IS/WP1 and IS/WP2 set forth in this, its Fifth Interim Report.

II. Working Party 1 (Policy and Regulation)

The activities of IS/WP1 since the last interim report have focused on two issues, (1) the definition of "simulcasting" and (2) rules and policies which would reduce the cost and delays of ATV broadcast implementation consistent with the Commission's public interest goals.

A. Simulcasting. IS/WP1 met in March of 1991 to discuss the definition of "simulcasting". As the Advisory Committee is aware, the FCC has determined that broadcast ATV implementation will be effected through a "simulcasting" approach in which NTSC service will continue to be broadcast as today on one broadcast channel and ATV service will be broadcast on a second "simulcast" channel. The FCC has, in its most recent Notice of Proposed Rulemaking dealing with ATV issues, requested comments on whether it should require identical or near-identical content on the NTSC and ATV channels, or whether it should permit, at least for the immediate future, differential content on the NTSC and ATV channels.

At its March meeting, IS/WP1 concluded that a flexible definition of "simulcasting" would best serve the public interest. IS/WP1 came to this conclusion for several reasons, including the encouragement of broadcaster innovation during the introductory phase of ATV service, and the avoidance of substantial constitutional questions potentially attendant on FCC imposition of content restrictions in the ATV service.

B. Reduction of Costs and Delays in Broadcast ATV Implementation. At its December and January meetings, IS/WP1 considered at length possible policies and rules which might be adopted by the FCC to reduce the costs and/or delays in broadcast ATV implementation and thereby promote the public interest goal of prompt ATV implementation.

IS/WP1 adopted a paper setting forth recommended ATV implementation rules and policies. That paper is Attachment A hereto. In making its recommendations, IS/WP1 assumed (without otherwise taking a position on the matter) the adoption by the FCC of its proposed 3 year/2 year application/construction ATV implementation plan. In brief summary, the rules and policies recommended by IS/WP1 include the following:

- 1) Concurrent allotment, assignment and standards decisions. IS/WP1 concluded that adoption of an ATV allotment and assignment scheme at the same time as adoption of an ATV standard would avoid potential serious delay in the implementation of broadcast ATV. This recommendation is consistent with the finding of IS/WP2 (discussed below) that failure to proceed in this fashion would add directly to ATV implementation time lines.

In addition, IS/WP1 recommended that the Commission consider the benefits of a site-specific assignment plan in order to promote co-location of ATV and NTSC antenna sites.

To promote expeditious resolution of disputes over the propriety of any Commission assignment methodology, IS/WP1 also recommended that the Commission promptly adopt a definitive methodology for making ATV assignments. Were the Commission to adopt a final report and order on such a methodology now, for example, appellate review by aggrieved parties could occur sooner, with less chance of delaying the effective date of actual assignments of spectrum to ATV license applicants.

- 2) Application procedures and processing. IS/WP1 recommends elimination or streamlining of many of the formalities currently attendant to the application process in order to expedite the application process. Noting the Commission's limitation of the potential ATV license applicant pool to current Commission licensees, IS/WP1 points out that the Commission already is acquainted with the legal, financial, character and other qualifications of ATV applicants.

IS/WP1 also recommends the adoption of a liberal extension of time policy with respect to ATV applications where, for example, broadcasters cannot colocate their ATV and NTSC towers and must therefore find another site. This recommendation is supported by the findings of IS/WP2 that there may be substantial practical impediments, in particular markets, to finding alternative ATV antenna sites.

- 3) "Staggered" or "Phased" Processing. IS/WP1 also observes that the FCC may find useful the adoption of a "staggered processing" policy pursuant to which the Commission would process ATV applications

for the largest markets first, and sequentially for successively smaller markets thereafter. A staggered processing policy will permit those stations with greater resources to begin ATV implementation earlier and permit smaller market stations with fewer resources to take advantage of developing economies of scale that may be expected to reduce broadcasters' ATV implementation costs below those experienced as a result of early ATV operations in larger markets. A staggered processing policy would also, in the view of IS/WP1, mitigate the potential opportunities for opportunistic pricing by equipment suppliers whose broadcast customers would otherwise be faced with identical construction deadlines. This recommendation is supported by the findings of IS/WP2 that broadcasters expect and plan to implement ATV operations in larger markets first and in smaller markets thereafter.

- 4) Policies regarding ATV "construction". It seems clear that the Commission intends "construction" to mean the ability to emit signals embodying the ATV transmission standard. IS/WP1 recommends that the FCC confirm that definition. Nevertheless, IS/WP1 also recommends that the FCC maintain a flexible approach toward meeting the definition of "construction," as ATV is a new, untested service. That is, IS/WP1 urges the Commission to consider other indicia of applicants' good faith intent to implement the ability to emit signals embodying the ATV transmission standard as warranting waiver or extension of any definite construction period.

IS/WP1 urges, moreover, the Commission to consider adopting a liberal extension-of-time policy for delays beyond a permittee's control, such as the following: (1) where an ATV equipment purchase order is executed and down payment made, but timely delivery of that equipment cannot be accomplished; (2) during the pendency of FAA clearances; (3) where broadcasters need to renovate their NTSC facilities in order to colocate ATV operations or to obtain a second site, particularly during the pendency of local zoning proceedings and other local permit proceedings. In addition, IS/WP1 notes the potential need for special consideration for ATV permittees in markets with complex antenna farms such as New York City. IS/WP1's recommendations are supported by IS/WP2's findings relating to the practical problems confronting broadcasters in some markets.

- 5) Initial ATV Operations. IS/WP1 recommends that the Commission require the filing by ATV licensees, at the time of license renewal, of a report indicating the steps they have taken to implement ATV service. Future license renewal challenges could be based upon a failure to comply with FCC rules and policies regarding ATV implementation.
- 6) Technical Disclosures/Licensing Policies. In order to stimulate a competitive market in consumer and professional equipment and prompt ATV implementation by broadcasters, IS/WP1 recommends that the FCC consider (a) requiring each system proponent to attest to its willingness to license its patents to all on reasonable and nondiscriminatory terms, (b) urging proponents to provide, on reasonable terms, an appropriate level of manufacturing know-how to its

patent licensees, and (c) requiring proponents to make a disclosure of their system sufficient to enable broadcasters to determine that they are radiating the approved ATV system standard and sufficient to enable consumer and professional equipment suppliers to manufacture equipment capable of producing and/or receiving the approved ATV system standard. IS/WP1's recommendation is supported by IS/WP2's finding that timely and comprehensive disclosure and dissemination of the technical elements of proponent systems is critical to speedy ATV implementation.

C. Future Work. IS/WP1's future work will focus on such policy issues as ATV encryption/subscription and ATV signal carriage policies, among others.

III. Working Party 2 (Transition Scenarios)

The continuing focus of IS/WP2 work since the Fourth Interim Report has been on the development of a series of charts of the implementation process for the various industry segments showing the tasks they must undertake, the relationships of those tasks, and the times likely to be taken in completing those tasks. As part of its work, IS/WP2 has surveyed the owners of all major television station groups (to determine their expectations for implementing ATV) and the Chief Engineers of a sample of stations (to determine the personnel resources each has and might make available for ATV implementation).

In addition, IS/WP2 has instigated discussions among the TV stations in some of the larger markets in order to understand the problems they may face in implementing ATV in their markets. Out of those discussions have emerged several Local Area Groups organized to address local ATV implementation issues. IS/WP2 has also begun to review its implementation charts with system proponents in order to differentiate among the implementation requirements and capabilities of the proposed systems.

IS/WP2's Fifth Interim Report reflects a detailed and comprehensive review of its activities to date and its plans for future work. A copy of its report is attached hereto as Attachment B.

A. Current work. A number of the important tentative conclusions of IS/WP2 reinforce the recommendations of IS/WP1 concerning rules and policies which might be adopted by the Commission in order to expedite the introduction of ATV service in the United States. Among IS/WP2's conclusions are the following:

- 1) Concurrent allotment, assignment and standards decisions. IS/WP2 concludes that failure to make specific channel allotments and assignments at the same time as an ATV standard is adopted and rules for ATV service are established will add directly to the implementation time for ATV service.
- 2) Application procedures and processing. IS/WP2's studies confirm that the 3 year/2 year proposal contained in the NPRM released 11/8/91 is reasonable in the abstract: a typical station committed to do so can be expected to be on the air within a five year cycle, including construction within a 2 year window from construction permit to on-air. In practice, however, the surveys and other work of IS/WP2 suggest several additional observations:
 - a) No station can be expected to complete normal construction to on-air operation within the first year, few in the second.
 - b) A significant number of stations will require new antenna towers and sites. This includes some stations in major markets, based on the discussions of the Local Area Groups referred to above.

- c) Few, if any, stations will achieve the minimum implementation time. Not all stations will achieve even the typical time. Some will encounter significant uncontrollable delays. The FCC's rules to administer ATV implementation should recognize and deal with this circumstance.
- d) The proposed time limits would represent a significant truncation of the time interval over which stations are expected by the Commission to implement ATV, as compared to the broadcaster expectations of that time. Based on its surveys, IS/WP2 has concluded that the manpower forecasted to be available would support industry implementation to pass-through capability if the station starts are time-phased over the intervals suggested by the group owners and by CBS. (The CBS results are set forth in its study, "High Definition Television Transition Scenarios for TV Stations, A CBS Work-in-Progress", dated October 23, 1990, Attachment B to the Implementation Subcommittee's Fourth Interim Report submission dated March 7, 1991.) No such assertion can be made for the shorter schedule proposed by the FCC.

IS/WP2's findings thus support IS/WP1's recommendations of (i) a liberal extension-of-time policy toward ATV applications and construction, where appropriate due diligence showings can be made, and (ii) "staggered" or "phased" implementation discussed in the next subparagraph.

- 3) "Staggered" or "Phased" Implementation. Inputs to IS/WP2 from its survey of station group owners and the CBS study show that broadcasters are planning to time-phase the start of ATV station implementation based on market size (and also to time-phase the degree of implementation accomplished, initially providing pass-through capability).

The fixed 3 year/2 year time restrictions proposed in the FCC's NPRM would preclude much of the time-phasing of station conversions planned by broadcasters. Truncation of the implementation cycle will lead to the loss of some important benefits that would accrue from the staged approach. Specifically, it will:

- increase capital demands on groups, due to simultaneous construction;
- negate some of the equipment cost reductions forecasted by CBS and SS/WP3, since design refinement and productivity increase require both time and work, not merely higher volume; and
- exaggerate the problem of financing the on-air operations of some stations, since the earlier the start, the smaller the audience.

IS/WP2's findings thus support a consideration of a "staggered" or "phased" implementation schedule, consistent with IS/WP1's recommendation for a "staggered processing" policy for ATV applications, a policy which would have the effect of phasing the FCC's deadline for construction of ATV facilities.

- 4) Policies regarding ATV "Construction". IS/WP2's findings regarding broadcasters' intentions to phase ATV implementation also support the Commission's intention to define "construction" of ATV facilities as the

capability of emitting a signal embodying the ATV transmission standard, a definition which will permit a time-phasing of the degree of ATV implementation (i.e., from pass-through capability, to play-back, to full studio conversion).

These findings support IS/WP1's recommendation that the FCC confirm its proposed definition of "construction" and monitor the degree of ATV implementation by means of licensee reports accompanying license renewal applications.

- 5) Technical Disclosures/Patent Licensing Policies. IS/WP2 has determined that timely release and dissemination of comprehensive technical information about proponent systems will be critical to the speedy development of the ATV marketplace. Equipment manufacturers on both the studio-transmitter side and the receiver side of the ATV system cannot begin design of their products until adequate technical information is available from the proponent whose system ultimately is selected. Similarly the setting of standards, both in the Rules and in industry documentation, requires a high level of information transfer. The level of information provided by the proponents through SS/WP1 is inadequate for either product design or standards-setting and is sufficient only for deciding on certification and the required testing.

In its analyses of the transition scenarios and estimates of the implementation timing of the various industry segments, IS/WP2 has made the assumption that the required technical information will be published no later than the issuance of the NPRM proposing the system selection. Any later promulgation of the required data will add directly to the estimated time for completion of the many tasks each industry segment faces. A head start on the development and release of this information could alleviate such an impact on the implementation process.

IS/WP2's findings support IS/WP1's recommendation to require timely and comprehensive disclosure by proponents of the technical details of their systems and to adopt a policy of encouraging proponents to adopt reasonable and non-discriminatory patent and know-how licensing policies.

- 6) Availability of Consumer Product. The implementation study of the consumer products segment - ATV receivers - projects general market availability (defined as multiple ATV equipment suppliers manufacturing in quantity) 2-1/2 - 3 years after the Report and Order authorizing the HDTV broadcast service and 3-1/2 years after the release of full technical information (assumed to be coincident with the NPRM proposing a system selection). While it has been suggested that a proponent/manufacturer could have a 6-9 month advantage over this development time, it is generally agreed that consumer acceptance and significant market growth will be contingent upon product availability in quantity from a broad representation of the industry.

The implementation cycle for consumer products is of equal importance to that for professional equipment (such as broadcast transmitters) and can affect the work and conclusions of the Commission and of other Working Parties of the Advisory Committee. Some have projected that ATV receiver penetration will be seeded by demand for receivers stimulated by other media, before availability of terrestrial HDTV broadcasting. The scenario developed to date by IS/WP2 for availability of technical information and standards and subsequent development of receivers does not support such a projection.

Because of the importance of receiver availability in the implementation process, IS/WP2 has asked all consumer products manufacturers (EIA list) for comment on the receiver development charts and assumptions in order to verify the validity of the work done in this area.

B. Future Work. IS/WP2's future activities will continue to focus on transition issues, such as the relative implementation capabilities of different proponent systems and consumer and professional equipment availability. IS/WP2 plans to meet with system proponents and to survey equipment manufacturers as part of its efforts on these and other issues.

ATTACHMENT A

Reducing Costs and Delays in Broadcast ATV Implementation

This paper addresses ways FCC rules and policies might reduce costs and delays in ATV implementation for broadcasters and thus achieve the public interest goal of prompt ATV implementation.

- I. Assignment Phase. We would advise the Commission to assign to each existing station¹ a specific ATV channel at the same time its choice of an ATV transmission standard becomes final (assuming no stay in any further appellate process). To promote expeditious appellate adjudication, the Commission should, to the extent possible, adopt a definitive methodology for making ATV assignments prior to either selecting a transmission standard or making actual assignments. Furthermore, if the Commission pairs ATV assignments with stations' NTSC channels, the allotment (to community) and assignment (to existing station/potential ATV applicant) processes can be combined, saving administrative time and eliminating at least some of the potential for time and money spent in disputes between and among licensees over their ATV channel preferences.²

¹ "Each existing station," means each entity in the initially-eligible class of ATV applicants.

² Of course, licensees may well engage in private negotiations and propose modifications, possibly in the form of waiver requests, in initially-announced ATV assignments; but an initial table of paired, optimized ATV/NTSC assignments undoubtedly would streamline this process.

Moreover, the Commission should consider the benefits of site-specific ATV assignments. A site-specific assignment plan would promote colocation, which would, for many licensees, eliminate the expense and time involved in securing a second site for ATV broadcasting. This is no small matter. Even those licensees that must renovate present NTSC sites to accommodate ATV facilities are bound to sustain less cost and delay than those that must locate and secure the right to use an additional site. A site-specific plan would facilitate colocation, which would simplify greatly the task of implementing ATV for many broadcasters.

- II. Application Phase. Any timetable set for the filing of applications should commence with the effective date of final Commission action on ATV assignments, i.e., after any reconsideration petitions have been adjudicated, but prior to court appeals, unless the proceeding is stayed pending appellate review, in which case no timetable should proceed until after stay is lifted. ³

To the extent that any individual or entity among those initially eligible to file an application for an advanced television construction permit is an existing broadcast licensee, that individual or entity should be able to

³ The following discussion assumes but neither endorses nor opposes the three-year application deadline proposed in the Notice of Proposed Rulemaking.

incorporate by reference in its ATV application any relevant information contained in the most recent broadcast license renewal application. Many of the formalities required in the context of the initial broadcast construction permit application process are time consuming and costly for broadcasters and probably could be dispensed with in the ATV context, with no resulting harm to the public interest. It also should be unnecessary to require evidence of financial qualification from existing licensees. The format and requirements for existing licensees' ATV construction permit applications might be modeled on applications for minor modification of license, with commensurately low application processing fees.

Furthermore, it would be appropriate to establish a liberal extension of time policy for broadcasters that cannot colocate and must find a second site. A liberal amendment policy for the category of proposed amendments that would not give rise to the potential for harmful interference also might be appropriate. Finally, to the extent that the Commission already has determined that Ashbacker will permit the initial assignment of ATV channels to existing broadcasters only (see footnote 1), petitions to deny ATV construction permit applications would seem to be of limited public interest value. To the extent permitted by the Communications Act, we advise that petitions to deny be limited to technical aspects of the ATV proposal only. Any issues relating to an ATV applicant's NTSC licensee

performance or basic qualifications will have had ample opportunity to be vetted in connection with the most recent NTSC license renewal. Thus, potential petitioners to deny will not be deprived of a forum if petitions to deny ATV construction permit applications are limited; and such limits could reduce time and expense in ATV implementation.

As ATV applications are filed, the Commission may find it useful to establish its own internal priorities for processing applications. The broadcast industry generally would recommend adoption of a staggered ATV application process, beginning with the largest markets and working towards smaller markets. Such a process, it is believed, may result in earlier ATV implementation and reduced expense for broadcasters.

The resources available to larger-market stations to pursue ATV implementation are likely to be greater than those of smaller-market stations. Staggered processing will permit smaller market stations with fewer resources to take advantage of developing economies of scale that may be expected to reduce implementation costs arising from early ATV operations in larger markets. Market-by-market processing also may encourage private market-wide

negotiations to develop optimal solutions to specific ATV spectrum assignment issues that may remain after the initial ATV assignments have been made.⁴

III. Construction Phase.⁵ One initial concern about the unintended effect of imposing a hard-and-fast deadline for construction of ATV facilities is that applicants may face difficulties regarding the availability of affordable ATV equipment. This problem may well be exacerbated by the fact that a fixed, relatively short period during which all applicants must purchase ATV transmission equipment is very different from the present pattern in the broadcast industry, where equipment is purchased initially as needed or replaced at varying rates, as it grows old or becomes obsolete. One mitigating factor would be some form of

⁴ Of course, if licensees filing applications prior to the deadline seek expedited processing before ATV applications for the rest of their market are processed, the Commission should give favorable consideration to such requests, provided that the application contains no engineering waiver requests (e.g., for short spacing) that could conceivably cause harmful interference to or otherwise prejudice later ATV applications in the market. This will serve the Commission's goal of prompt implementation without prejudicing other potential applicants.

⁵ The following discussion assumes but does not take a position on the two-year deadline proposed in the Notice of Proposed Rulemaking, or any fixed period for construction.

staggered application processing procedures, so that not all markets would be in the position of having to purchase ATV transmission equipment during the same limited time period.

In general, we would urge the Commission to develop policies that will encourage competition among ATV transmission equipment suppliers, so that ATV permittees may enjoy competitively-priced options. In addition, we would advise the Commission to indicate its willingness to relax construction deadlines, should it appear that a fixed construction period has the unintended and undesired effect of limiting the price ranges and availability of ATV equipment.

It seems clear that the Commission intends "construction" to mean the ability to emit signals embodying the ATV transmission standard. Nevertheless, the Commission may wish to maintain a flexible approach toward meeting the definition of "construction," as ATV is a new, untested service. That is, the Commission may find it in the public interest to avoid a Draconian application of any "go, no go" standard, and may wish to consider other indicia of applicants' good faith intent to implement the ability to emit signals embodying the ATV transmission standard as warranting waiver or extension of any definite construction period. These could include a binding contract to acquire an additional site, ATV antenna or transmitter or upgraded

studio production equipment;⁶ executed contracts for syndicated programming of ATV quality; or contracts with local cable systems to deliver some of their programming in high definition. Particularly to the extent that they require capital expenditure, these actions should be taken as indicia of irrevocable commitment to ATV implementation, warranting extension of any fixed construction deadline the Commission may set.

Moreover, should it impose a definite construction deadline, the Commission is advised to consider adopting a liberal extension of time policy for delays beyond a permittee's control, such as the following: (1) where an ATV equipment purchase order is executed and down payment made, but timely delivery of said equipment cannot be accomplished; (2) during the pendency of FAA clearances; (3) where broadcasters need to renovate their NTSC facilities in order to colocate ATV operations or to obtain a second site, particularly during the pendency of local zoning proceedings and other local permit proceedings. In addition, special consideration may be necessary for ATV permittees in markets with complex antenna farms such as New York City.

⁶ The Commission might wish to continue to monitor ATV licensees' progress in this regard; however, the Commission is wise in requiring no local ATV origination capability to receive an initial license to cover an ATV construction permit. In this early phase, it may be appropriate to permit ATV broadcasters to select the level of further ATV implementation that is appropriate for their particular program line-up and their market.

IV. Initial Operations. In order for the Commission to monitor further ATV implementation, ATV broadcasters might be required to file a report indicating the steps they have taken to implement ATV service (beyond meeting any initial construction requirements) with their ATV license renewal applications subsequent to grant of the initial ATV license. Future ATV license renewal challenges could be based upon failure to implement ATV.

V. System Proponents. In order to stimulate a competitive market and prompt implementation, the Commission may wish to consider requiring each system proponent to attest to its willingness to license its patents to all on reasonable and nondiscriminatory terms and urging proponents to provide an appropriate level of manufacturing instruction to its patent licensees, as well as providing a disclosure of the system itself sufficient to enable broadcasters to determine that they are radiating in the standard and sufficient to enable equipment manufacturers to produce equipment. We would advise the Commission to indicate its willingness to intercede, should it appear that difficulties with licensing terms are impeding the speedy development and manufacture of competitively-priced ATV transmission equipment.

February 12, 1992

FCC Advisory Committee on Advanced Television Service

**Contribution to the Fifth Interim Report
of the Implementation Subcommittee**

from

Working Party 2 on Transition Scenarios

S. Merrill Weiss, Acting Chairman
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Table of Contents

Executive Summary	iii
Introduction	1
Objectives of IS/WP-2	1
Efforts undertaken	2
Transition Scenarios	3
Method	3
Inputs From Proponents	4
Surveys	5
Group Owners	5
Chief Engineers	6
Local Area Groups	6
Implementation Issues	7
Availability of specific channel assignments	7
Dissemination of technical information	7
Impact of assumptions on implementation time	8
Preference for time phased station implementation	10
Need for delay in applying	11
Availability of Consumer Product	12
Future Activities	12
Proponent Meetings	13
Survey Of Equipment Manufacturers	13
Survey Of Video Software Providers	13
Consumer Electronics Manufacturers Survey	14
Group Owners Repeat Survey	14
The Final Analysis	14
Conclusions	14
Technical Information	15
Critical Path Tasks	15
Broadcaster Interests in Staged Implementation	16
Availability of Consumer Receivers	16
Availability of Professional Equipment	17

Appendix A — Survey of TV Station Group Owners	18
Summary	18
Methodology/Administration	18
Response Rate	18
Statistical Significance	18
Questionnaire Design	19
Analysis of Responses	19
Implementation Timing	19
Resource Availability	20
Appendix B — Survey of TV Station Chief Engineers	22
Summary	22
Sample Design	22
Methodology/Administration	22
Response Rate	22
Questionnaire Design	23
Data Reduction	23
Statistical Significance	24
Appendix C — Report of IS/WP-2: Study Results and Preliminary Conclusions	
Appendix D — Survey of Consumer Electronics Manufacturers	
Appendix E — Materials Package Provided to Proponents (PERT Charts/Gantt Charts/Assumptions Lists/Questions, etc.)	

Executive Summary

IS/WP-2 has responsibility for developing "Transition Scenarios" for the change to an Advanced Television Service in the United States. In this interim report are described a number of significant and possibly surprising results of the work of IS/WP-2 that may influence thinking about the implementation of HDTV.

A survey of television station group owners conducted by IS/WP-2 revealed that they tend to favor a phased approach to the transition to Advanced Television, in which the largest markets make the transition to HDTV first. The proposed implementation schedule recently put forward by the FCC in its Notice of Proposed Rule Making is not consistent with such a staggered implementation and could easily lead to a difficult position for many broadcasters regarding the timing of their applications for an ATV channel assignment. Broadcasters would face the dilemma of applying early and possibly running out of time to implement or applying later and possibly receiving a less favorable channel assignment or other facilities. This leads IS/WP-2 to recommend possible solutions for this dichotomy.

IS/WP-2 has constructed implementation charts for different industry segments and for different sets of assumptions. These have revealed that certain tasks in the transition process are the most critical and require early and effective attention. The degree to which government regulatory processes, at various levels, will control the speed of implementation of HDTV is also highlighted by these charts.

It has become clear that a most crucial element in the whole implementation process is the availability of sufficient technical information on the selected system. The certification documents produced by the proponents thus far are not nearly sufficient in this respect. The task of putting this information together is considerable and likely will not be undertaken by a proponent before it knows that its system has been selected. IS/WP-2 points out the significance of this documentation to all parts of the transition process and to all parties concerned: manufacturers of professional equipment and consumer products, broadcasters, and the cable community.

The body of this document gives full treatment to these and a series of other significant implementation concerns, spelling out in detail where the critical points will be in bringing Advanced Television to the United States.